

**Notice of Allowability**

Application No.

10/603,880

Examiner

Adeel Haroon

Applicant(s)

ROBINSON ET AL.

Art Unit

2685

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9/1/05.
2. ☒ The allowed claim(s) is/are 1-6 and 8-29.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____.   |

## **DETAILED ACTION**

### ***Allowable Subject Matter***

1. Claims 1-6 and 8-29 are allowed.
2. The following is an examiner's statement of reasons for allowance:

With respect to claim 1, Budnik discloses an amplifier system that operates on in three modes: envelope tracking mode, polar (envelope supply) mode, and linear mode based on characteristic of the input signal (Column 2, lines 58-67). Budnik in figure 8 discloses a power amplifier, element number 6 to amplify an input signal having an input terminal, element number 202, and a supply terminal, element number 207 (Column 6, lines 51-65). Budnik also discloses a mode selector/digital predistortion block, element number 1, controls the operation of the amplifier system and provides a selected amplifier input to the input terminal and selected amplifier supply signal to the supply terminal (Column 6, lines 35-42). However, Budnik does not disclose that the power amplifier is a linear class type amplifier that operates as a constant class amplifier.

Claims 2-6 and 8-14 are allowed as being dependent on independent claim 1.

With respect to claim 15, Budnik in figure 8, discloses an amplifier system that comprises a power amplifier, element number 6 and a modulator/modulation amplifier, element number 43, having an output coupled to a supply terminal of the power

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amplifier. Budnik also discloses a digital system, circuit 800 except the power amplifier 6, that controls the operation of the amplifier system between an envelope tracking mode, polar mode, and a linear mode base on an amplitude level of the input signal relative to a first threshold value and a second threshold value (Column 2, lines 58-67). Budnik also discloses the amplifier system operates in the linear mode for input signal amplitudes below about the first threshold value, 5 volts, the polar mode for input signal amplitudes above the second threshold level, 10 volts, and in the envelope tracking mode for input signal amplitudes between the first and second threshold level, 5-10 volts (column 4, lines 44-52). Budnik does not disclose the DACs as recited in the claim. Budnik also does not disclose that the second threshold level has an amplitude equal to a headroom voltage below a peak voltage of the input signal, and the headroom voltage being associated with the envelope tracking mode.

Claims 16-19 are allowed as being dependent on independent claim 15.

With respect to claim 20, Budnik discloses an amplifier system the amplifying a phase and amplitude modulated input signal and means for switching modes of operation of the amplifier system between an envelope tracking mode, polar mode, and a linear mode base on an amplitude level of the input signal relative to a first threshold value and a second threshold value (Column 2, lines 58-67). Budnik also discloses the amplifier system operates in the linear mode for input signal amplitudes below about the first threshold value, 5 volts, the polar mode for input signal amplitudes above the second threshold level, 10 volts, and in the envelope tracking mode for input signal amplitudes between the first and second threshold level, 5-10 volts (column 4, lines 44-

52). However, Budnik also does not disclose that the second threshold level has an amplitude equal to a headroom voltage below a peak voltage of the input signal, and the headroom voltage being associated with the envelope tracking mode.

Claims 21-23 are allowed as being dependent on independent claim 20.

With respect to claim 24, Budnik discloses a method for switching modes of operation of the amplifier system between an envelope tracking mode, polar mode, and a linear mode base on an amplitude level of the input signal relative to a first threshold value and a second threshold value corresponding to low and peak level amplitude signals (Column 2, lines 58-67). Budnik discloses providing a composite signal component, element number 490, to the input terminal and an amplitude modulation waveform, element number 498, which can be a constant envelope signal or a variable amplitude signal depending whether in linear mode or envelope tracking mode, to the supply terminal in figure 6 (Column 3, lines 50-65). Budnik further discloses generating a supply signal with additional overhead, acceptable headroom, when operating in the envelope tracking mode (Column 7, lines 11-23). Budnik does not specifically disclose the amplification technique in polar mode as recited in the claim. Budnik also does not disclose that the second threshold level has an amplitude equal to a headroom voltage below a peak voltage of the input signal.

Claims 25-28 are allowed as being dependent on independent claim 24.

With respect to claim 29, Budnik discloses an amplifier system that operates on in three modes: envelope tracking mode, polar (envelope supply) mode, and linear mode based on characteristic of the input signal (Column 2; lines 58-67). Budnik in

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figure 8 discloses a power amplifier, element number 6 to amplify an input signal having an input terminal, element number 202, and a supply terminal, element number 207 (Column 6, lines 51-65). Budnik also discloses a mode selector/digital predistortion block, element number 1, controls the operation of the amplifier system and provides a selected amplifier input to the input terminal and selected amplifier supply signal to the supply terminal (Column 6, lines 35-42). However, Budnik does not disclose a digital cross-cancellation component that generates a reference signal corresponding to a desired output signal of the amplifier system, the reference signal being combined with a portion of an output signal from the power amplifier to determine an error signal, the error signal being inverted and combined with a delayed version of the output signal of the power amplifier to generate a final output signal.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Adeel Haroon whose telephone number is (571) 272-

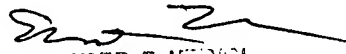
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7405. The examiner can normally be reached on Monday thru Friday, 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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11/10/05

  
EDWARD F. URBAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2000